



16698 U.S. PTO

22859 U.S. PTO
10/790731



TITLE : Semi-closed air cooling type radiator

BACKGROUND OF THE INVENTION

5 The present invention relates to radiator useful to the electronic components and more particularly to a semi-closed air cooling type radiator.

Generally, the prior art air cooling type radiator is secured to the top of the CPU of a computer. This type of radiator has an air fan to blow the radiator itself to achieve the heat radiation effect. But the cooling air blew by the
10 air fan is coming from inside of the computer. After a long period of continuous circulation, the temperature of the air inside the computer should be come higher and higher that radiation effect of the radiator would be gradually reduced. Further, this type of radiator could only perform the radiation
15 on the important point but could not guide the cooling air to everywhere of the radiator. Therefore, the radiator effect is not perfect. Besides, the noise of the air fan disturbs the operator.

SUMMARY OF THE PRESENT INVENTION

20 The present invention has a main object to provide a semi-closed air cooling type radiator which can be able to guide the external natural air or refrigerant into the radiator to evenly reduce the temperature in the radiator in order to greatly promote the radiation effect.

25 Accordingly, the semi-closed cooling air type radiator

of the present invention comprises generally a rectangular framed main body having an opened top, a plurality of partitions diagonally, spacedly and alternately disposed inside the main body and each having a indenture at free end so as to define an air circulation system therein and a rectangular lid covering the top of the main body. The rectangular lid has a first and a second air vents on opposing corners respectively communicating with the inlet and the outlet of the air circulation system. A set of additional air flow system is provided in the computer and connected between the external of the computer and the lid and includes a first air pipe connected with the first air vent and a second air pipe connected with the second air vent. The other end of the first air pipe connects with an air flow actuator on the top of the computer for compulsively forming an air flow circulation in the entire radiator in order to greatly promote the radiation effect to ensure the stability of the electronic components in the computer.

The present invention will become more fully understood by reference to the following detailed description there of when read in conjunction with the attached drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is an exploded perspective view of a semi-closed air cooling type radiator of the preferred embodiment of the present invention,

Figure 2 is a perspective view to show the assembly of Fig. 1,

Figure 3 is a sectional view taken along line 2-2 of Fig. 2,

5 Figure 4 is an elevational view to show that the air cooling type radiation of the present invention assembled to a CPU of a computer, and

Figure 5 is an elevational view to show that the air cooling type radiation is assembly to the CPU of a computer in series state.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference to Figs. 1, 2 and 3 of the drawings, the semi-closed air cooling type radiator of the present invention comprises a rectangular framed main body 10 disposed on the CPU 41 of a computer 40 and has four side walls connected on the corners by four cylindrical posts, an opened top, a plurality of vertical radiation fins 11 spacedly disposed on the outer surface of the side walls and a plurality of diagonal partitions 12 spacedly and alternately disposed inside the main body 10 each having one end connected to an inner surface of the side walls and the other end having an indenture 14 between the inner surface of the side wall so as to form an air circulation system 13 in the main body 10.

A rectangular lid 20 covers the top of the main body 10 and has a pair of cylindrical tubes 21 spacedly projected

upward from the opposing corners and an air inlet 22 and an air outlet 23 respectively formed in the cylindrical tubes 21 communicating to the beginning and the end of the air circulation system 13 relatively.

5 An air circulation set includes a first air guiding pipe 30 having one end connected to the air inlet 22 and the other end connected to an air flow actuator 32 on the top of a computer 40 and a second air guiding pipe 31 having one end connected to the air outlet 23 and the other end to an air vent 33 in a
10 lateral wall of the computer 40 (as shown in Fig. 4). Wherein the air flow actuator 32 may be able to guide the fresh air or the refrigerant from external resource into the air circulation system 13 of the main body 10 to reduce the temperature in the partitions 12 by heat exchange and the air
15 vent 33 is functioned to exhaust the hot air from the air circulation system 13 to outside of the radiator.

In other consideration, the air flow actuator 32 may be disposed inside the computer 40 or any other outer surface of the computer 40 in order to reduce the noise to disturbs
20 the operator. If the air flow actuator 32 is functioned to exhaust the heat air from the air circulation system 13 and the fresh air is guided in from the air vent 33, it also be able to achieve the cooling off job for the radiator.

Figure 5 shows an alternate arrangement in which a pair
25 of the air cooling type radiators are connected by an additional

air guiding pipe 34 between their air inlet 22 and air outlet 23. The original first air guiding pipe 30 is still connected between the air inlet 22 of a first air cooling type radiator and the air flow actuator 32 and original second air guiding pipe 31 is still connected between the air outlet 23 of a second air cooling type radiator and the air vent 33. When the fresh air enters into the air circulation system 13 of the first radiator and then enters into the air circulation system 13 of the second radiator via the additional air guiding pipe 34 and finally exhausts out from the air vent 33 through the second air guiding pipe 31, the purpose of using one air guiding set simultaneously radiating the heat air in the two radiators are achieved.

Note that the specification relating to the above embodiment should be construed as an exemplary rather than as a limitative of the present invention, with many variations and modifications being readily attainable by a person of average skill in the art without departing from the spirit or scope thereof as defined by the appended claims and their legal equivalents.